MRID No. 429271-04

# DATA EVALUATION RECORD

1. **CHEMICAL:** Oxine Copper (Copper 8-Quinolinolate). Shaughnessey Number: 024002.

2. **TEST MATERIAL:** Ro 17-0099/000; Copper 8-Quinolinolate; bis-(8-quinolinolato)-copper; Batch No. 8293/3; 99.5% purity; a dark green/yellow powder.

3. **STUDY TYPE:** 71-2. Avian Dietary $LC_{50}$ Test. Species Tested: Mallard duck (*Anas platyrhynchos*).

4. **CITATION:** Hakin, B., M.H. Rodgers and I. Grützner. 1991. Ro 17-0099/000 (Copper 8-Quinolinolate): Dietary Toxicity ($LC_{50}$) to the Mallard Duck. Study performed by Huntingdon Research Centre Ltd., Huntingdon, Cambridgeshire, England, and RCC UMWELTCHEMIE AG, Itingen, Switzerland. Laboratory Study No. HLR 186-901684/RCC 274228. Submitted by La Quinoleine et ses dérivés, S.A. EPA MRID No. 429271-04.

5. **REVIEWED BY:**

Michael L. Whitten, M.S.
Wildlife Toxicologist
KBN Engineering and
Applied Sciences, Inc.

**Signature:** Michael L. Whitten
**Date:** 1/5/94 Joseph Sylvester 4/5/95

6. **APPROVED BY:**

Mark A. Mossler, M.S.
Associate Scientist
KBN Engineering and
Applied Sciences, Inc.

**Signature:** M A Mossler
**Date:** 1/5/94

James J. Goodyear, Ph.D.
Project Officer, EEB/EFED
USEPA

**Signature:** Anne Stavola
**Date:** 4/14/95

7. **CONCLUSIONS:** This study is scientifically sound and meets the requirements of an $LC_{50}$ study. With an $LC_{50}$ of greater than 5200 ppm (nominal concentration), the test material is classified as practically non-toxic to mallard ducklings. The NOEC was 2600 ppm.

8. **RECOMMENDATIONS:** N/A.

9. **BACKGROUND:**



10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

11. **MATERIALS AND METHODS:**

A. **Test Animals:** Mallard ducks (*Anas platyrhynchos*) were obtained from a commercial supplier in Kent, England, and were phenotypically indistinguishable from wild birds. The birds were acclimated to the facilities for 3 days, and were 10 days of age at test initiation.

B. **Test System:** Birds were housed indoors in hardboard floor pens. Artificial lights provided 24 hours of light per day. The average minimum and maximum temperatures during the study were 25 ± 0.7°C and 28 ± 1.2°C, respectively, with a mean relative humidity of 53 ± 4%.

C. **Dosage:** Eight-day dietary $LC_{50}$ test. Nominal dietary concentrations were 163, 325, 650, 1300, 2600, and 5200 parts per million (ppm). The dietary concentrations refer to nominal concentrations of the test material as supplied, with no adjustment made for purity.

D. **Design:** Ten birds were assigned to each of six treatment groups and three control groups. The birds were assigned to treatment groups based on bodyweight, with the goal of similar mean bodyweights in each group. No attempt was made to determine the sex of the birds. Standard HRC chick diet was used as the basal diet. Food and water were supplied *ad libitum* during acclimation and during the test.

The test diets were prepared by mixing the test substance into the diet to form a premix from which the six treatment group diets were formulated. The diets were prepared on the day of test initiation, and maintained at room temperature during the test. The birds were fed the appropriate dietary concentrations for five days, and then given untreated food during a three-day recovery period.

Samples of the diets were taken to verify the test concentrations and to confirm the stability and homogeneity of the test substance in the diets. The samples were analyzed using high performance liquid chromatography.

All birds were observed daily for mortalities, signs of toxicity, and abnormal behavior. Group mean bodyweights were measured on days -3, 0, 5, and 8. Group food

consumption was determined for the 3-day acclimation period, daily during the treatment period, and for the 3-day recovery period.

Macroscopic *post mortem* examinations were conducted on all birds in the 5200 ppm group at study termination.

E. **Statistics:** No statistical analyses were conducted.

12. **REPORTED RESULTS:** Analyses of diet samples indicated that the test material was uniformly mixed, and stable in the diet for at least 5 days. Concentrations of test material in verification samples were within the range of 101.2 to 111.4% of nominal values.

There were no mortalities in the control group, nor in any treatment group. All birds in all groups remained in good health throughout the study.

When compared to controls, bodyweight gain was reduced in the 5200 ppm group during the test and recovery periods (Table 1, attached). Food consumption was reduced in the 5200 ppm group during days 1 to 5 (Table 2, attached).

No abnormalities were noted at necropsy.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** The dietary $LC_{50}$ was greater than 5200 ppm, the highest concentration tested. The no-effect-level was 2600 ppm.

The report contained statements certifying that the study was inspected by the laboratory's Quality Assurance department. The GLP statement was as follows: "The submitter of this study was neither the sponsor of this study nor conducted it, and does not know whether it has been conducted in accordance with 40 CFR Part 160."

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

A. **Test Procedure:** The test procedures were in accordance with Subdivision E, ASTM, and SEP guidelines with the following exceptions:

The birds were not randomly assigned to groups. Instead, the assignments were based on bodyweight, with the goal of similar mean bodyweights in each group.

Body weights were measured by group after the initial weighing. Individual body weights should have been measured at each weighing interval.

Pen dimensions were not specified.

B. **Statistical Analysis:** Since no birds died, the $LC_{50}$ and 95% confidence limits could not be calculated. Upon review of the data, the $LC_{50}$ reported by the authors (>5620 ppm) appears correct.

C. **Discussion/Results:** The birds were not randomly assigned to groups. Instead, the assignments were based on bodyweight, with the goal of similar mean bodyweights in each group. This method of assignment probably did not affect the outcome of the test. The registrant, however, should enact procedures in future tests that provide random assignments to groups.

With an $LC_{50}$ of greater than 5200 ppm (nominal concentration), the test material is classified as practically non-toxic to mallard ducklings. The NOEC was 2600 ppm. The study is scientifically sound and meets the requirements of an avian $LC_{50}$ study.

D. **Adequacy of the Study:**

(1) **Classification:** Core.

(2) **Rationale:** N/A.

(3) **Repairability:** N/A.

15. **COMPLETION OF ONE-LINER:** Yes; December 23, 1993.

DER MRID# 429271-04 OXINE COPPER

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_____ The product confidential statement of formula.

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The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

## Ecological Effects Branch One-Liner Data Entry Form

Chemical Oxine Copper Shaughnessy No. 024002 Pesticide Use Fungicide

| AVIAN ORAL TOX SPECIES (AGE) | % AI | $LD_{50}$ (95%CL) | SLOPE | NOEL | STUDY/REVIEW DATES | MRID/ CATEGORY | LAB | RC |
|---|---|---|---|---|---|---|---|---|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |

| AVIAN DIETARY SPECIES (AGE) | % AI | $LC_{50}$ (95%CL) | SLOPE | NOEL | STUDY/REVIEW DATES | MRID/ CATEGORY | LAB | RC |
|---|---|---|---|---|---|---|---|---|
| 1. Anas platyrhynchos 10 days-old | 99.5 | >5200 ppm* | N/A | 2600 ppm* | 1991/1993 | 429271-04 CORE | HRC | MLW |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |

COMMENTS: *- based on nominal concentrations